CLAIM AMENDMENTS

1. (Currently Amended) A method for a network switch port for receiving and storing data included in incoming packets that vary in size and then forwarding the data from the network switch port, the method comprising the steps of:

a. receiving each incoming packet and generating a cell sequence corresponding to the incoming packet, wherein each cell of the cell sequence ~~packet~~ contains a separate portion of the data included in the incoming packet, and wherein each cell of each generated cell sequence is of a uniform size;

b. making a determination with respect to at least one cell of each cell sequence generated at step a as to whether to discard the cell or to store the cell in a memory, and then one of storing or discarding the cell in the memory in accordance with the determination;

c. reading cells out of the memory and forwarding them from the network switch port; and

d. repetitively generating an estimate of an average number of cells stored in the memory during a period immediately preceding generation of the estimate, wherein the determination made at step b is a function of the generated estimate.

2. (Original) The method in accordance with claim 1 wherein step b comprises the substeps of:

b1. assigning the cell a discard weight that is a function of the estimated average number of cells stored in the memory generated at step d;

b2. generating a random number;

b3. comparing the cell's assigned discard weight to the random number to produce result data indicting whether the discard weight exceeds a value of the random number,

b4. making the determination as to whether to discard the cell or to store the cell in the memory as a function of the result data; and

b5. one of storing or discarding the cell in the memory in accordance with the determination made at step b4.

3. (Original) The method in accordance with claim 2 wherein the discard weight assigned to the cell at step b1 is a function of an amount by which the estimated average number of cells stored in the memory exceeds a threshold level.

4. (Original) The method in accordance with claim 2 wherein step b1 comprises the substeps of:

b11. allocating a separate discard weight for each of a plurality of separate number ranges,

b12. determining which particular number range of the plurality of separate number ranges includes the estimated average number of cells stored in the memory, and

b13. assigning the allocated discard weight of the particular number range to the cell.

5. (Original) The method in accordance with claim 4 wherein the discard weight for each of said plurality of number ranges is allocated at step b11 as an increasing function of magnitude of number values spanned by the number range.

6. (Original) The method in accordance with claim 2 wherein step b comprises the step of:

b1. making the determination with respect to a first cell of the cell sequence as to whether to discard that first cell and all other cells of the cell sequence based on a comparison of the first cell's assigned discard weight and the random number, and on whether a current number of cells stored in the cell memory at the time the determination is made exceeds a predetermined threshold level; and

b2. one of discarding all cells of the cell sequence or storing all cells of the sequence in the memory in accordance with the determination made at step b1.

7. (Original) The method in accordance with claim 1 wherein the step d of repetitively generating an estimate of an average number of cells stored in the memory during a period immediately preceding generation of the estimate comprises the substeps of:

a1. multiplying a last computed average number of cells stored in the memory by a value of a parameter X between 0 and 1 to produce a first value,

a2. multiplying a number of cells currently stored in the memory by a quantity (1-X) to produce a second value, and

a3. generating a next estimate of the average number of cells stored in the memory, as a sum of the first and second value, and

a4. iteratively repeating steps a1 through a3.

8. (Original) The method in accordance with claim 1 wherein step b comprises the substeps of:

b1. allocating a separate discard weight for each of a plurality of separate number ranges;

b2. determining which particular number range of the plurality of separate number ranges includes the estimated average number of cells stored in the memory;

b3. assigning the allocated discard weight of the particular number range to a first cell of each sequence,

b4. generating a random number;

b5. comparing the cell's assigned discard weight to the random number to produce result data indicting whether the discard weight exceeds a value of the random number;

b6. making the determination with respect to a first cell of the cell sequence as to whether to discard that first cell and all other cells of the cell sequence based on a comparison of the first cell's assigned discard weight and the random number; and

b7. one of discarding all cells of the cell sequence or storing all cells of the sequence in the memory in accordance with the determination made at step b6.

9. (Original) The method in accordance with claim 8 wherein the step d of repetitively generating an estimate of an average number of cells stored in the memory during a period immediately preceding generation of the estimate comprises the substeps of:

a1. multiplying a last computed average number of cells stored in the memory by a value of a parameter X between 0 and 1 to produce a first value,

a2. multiplying a number of cells currently stored in the memory by a quantity (1-X) to produce a second value, and

a3. generating a next estimate of the average number of cells stored in the memory, as a sum of the first and second value, and

a4. iteratively repeating steps a1 through a3.

10. (Currently Amended) The method in accordance with claim 1 wherein the estimated of the average number of cells stored in the memory is estimated at ~~step~~ step d whenever there is a change in a number of cell currently stored in the memory.

11. (Currently Amended) An apparatus for receiving, storing and then forwarding data in a plurality of incoming packets that vary in size, the apparatus comprising:

a memory;

first means for receiving each incoming packet and for generating a cell sequence corresponding to the incoming packet, wherein each cell of the cell sequence packet contains a separate portion of the data included in the incoming packet, and wherein each cell of each generated cell sequence is of a uniform size;

second means for making a determination with respect to at least one cell of each generated cell sequence to whether to discard the cell or to store the cell the ~~memory,~~ memory;

third means for one of storing or discarding the cell in the memory in accordance with the determination made by the second means, and for reading cells out of the memory and forwarding ~~them,~~ them; and

fourth means for repetitively generating an estimate of an average number of cells stored in the memory during a period immediately preceding generation of the estimate,

wherein the determination made by the second means is a function of the generated estimate.

12. (Original) The apparatus in accordance with claim 11 wherein the second means comprises:

fifth means for assigning each cell a discard weight that is a function of the estimate generated by the fourth means;

sixth means generating a random number;

seventh means for comparing the cell's assigned discard weight to the random number to produce result data indicting whether the discard weight exceeds a value of the random number,

eighth means for making the determination as to whether to discard the cell or to store the cell in the memory in response to the result data.

13. (Original) The apparatus in accordance with claim 12 wherein the discard weight assigned to each cell is a variable function of the estimated average number.

14. (Original) The apparatus in accordance with claim 12 wherein the fifth means allocates a separate discard weight for each of a plurality of separate number ranges, determines which particular number range of the plurality of separate number ranges includes the estimated average number of cells stored in the memory, and assigns the allocated discard weight of the particular number range to the cell.

15. (Original) The apparatus in accordance with claim 14 wherein the fifth means allocates the discard weight for each of the plurality of number ranges as an increasing function of magnitude of number values spanned by the number range.

16. (Original) The apparatus in accordance with claim 12 wherein the eighth means makes making a determination with respect to a first cell of each cell sequence as to whether to discard that first cell and all other cells of the cell sequence based on a comparison of the first cell's assigned discard weight and the random number, and on whether a current number of cells stored in the cell memory at the time the determination is made exceeds a predetermined threshold level.

17. (Original) The apparatus in accordance with claim 11 wherein the fourth means comprises:

means for multiplying a previously generated estimate of an average number of cells stored in the memory by a value of a parameter X between 0 and 1 to produce a first value,

means for multiplying a number of cells currently stored in the memory by a quantity (1-X) to produce a second value, and

means for generating a next estimate of the average number of cells stored in the memory, as a sum of the first and second value.

18. (Original) The apparatus in accordance with claim 11 wherein the second means comprises:

fifth means for allocating a separate discard weight for each of a plurality of separate number ranges;

sixth means for determining which particular number range of the plurality of separate number ranges includes the estimated average number of cells stored in the memory;

seventh means for assigning the allocated discard weight of the particular number range to a first cell of each sequence;

eighth means for generating a random number;

ninth means for comparing the cell's assigned discard weight to the random number to produce result data indicting whether the discard weight exceeds a value of the random number; and

tenth means for making the determination with respect to a first cell of the cell sequence as to whether to discard that first cell and all other cells of the cell sequence based on a comparison of the first cell's assigned discard weight and the random number, and

wherein the third means one of discards all cells of the cell sequence or stores all cells of the sequence in the memory in accordance with the determination made by the tenth means.

19. (Original) An apparatus for receiving, storing then forwarding incoming cells, the apparatus comprising:

a cell memory having storage capacity for storing cells; and

a traffic manager for maintaining at least one flow queue, for assigning each incoming cell to a flow queue, for repetitively computing an average number of cells assigned to each flow queue that are stored in the cell memory during a preceding period, for assigning a discard weight to each incoming cell that is a function the computed average number of cells stored in the cell memory assigned to the incoming cell's assigned flow queue exceeds the flow queue's assigned first threshold level, for randomly discarding incoming cells assigned to each flow queue with a probability that increases with the incoming

cells' assigned weight, for storing incoming cells not randomly discarded in the cell memory, and for forwarding cells assigned to each flow queue from the cell memory in an order in which they were assigned to the flow queue.

20. (Original) The apparatus in accordance with claim 19 wherein said traffic manager repetitively computes the average number of cells assigned to each flow queue that are stored in the cell memory as a sum of a X times a previously computed average number for that flow queue and a parameter X and (1-X) times a number of cells currently stored in the memory that are assigned to the flow queue, wherein X is a parameter having a value between 0 and 1.